Remarks

With entry of the present response, claims 1-20 are pending. Claim 1 is amended simply to correct a punctuation error. Claims 2-3 are unchanged. New claims 4-20 further define the subject matter of the independent claims, and are supported at least by the description of hardware-accelerated radiance transfer computation appearing in the specification at page 8, line 21 through page 11, line 29, as well as in Figures 4-7. Accordingly, no new matter has been added.

Applicants request reconsideration of the application in view of the following remarks.

Patentability Over Foley and Morioka

Claims 1-3 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Foley et al. [hereafter "Foley"], in view of Morioka et al.,U.S. Patent No. 6,333,742 [hereafter "Morioka"]. Applicants traverse the rejection.

Summary of the Claims

Claims 1-3 generally relate to the technique for hardware-accelerated computation of radiance transfer coefficients described in the Specification. According to this technique, the computation is arranged such that the outer loop of the computation iterates over a plurality of directions about an object, while the inner loop iterates over a set of sample points on the object surface. The computation uses two texture arrays: one texture representing positions of the sample points, and a second texture representing normals of the sample points.

Foley And Morioka Lack Textures Representing Sample Positions And Normals.

The claims recite language relating to the "texture" structures used in the technique. According to this language, an object positions texture represents positions of a set of points sampled over the object and that are mapped into a texture space, and an object normals texture

represents normals of the sample points. In particular, claim 1 recites, "creating an object positions texture representing positions of a set of points sampled over the object mapped into a texture space;" and "creating an object normals texture representing normals of the set of sampled points mapped into the texture space." Claims 2 and 3 recite similar language.

The Office alleges that Foley teaches the recited object positions texture and object normals texture. Applicants disagree.

At p. 742, Foley describes the conventional technique of texture mapping, in which an image is mapped onto a surface. Foley states, "the image is called a texture map, and its individual elements are often called texels." The texture mapping technique defines a correspondence from the four corners of a pixel on the screen, to four points on a surface of an object in the scene, and from there to a polygonal area in a texture coordinate space on the texture map. (Foley, p. 742-743.) In this way, the texture mapping "[selects one or more texels] to substitute for or to scale one or more of the surface's material properties, such as its diffuse color components." (Foley, p. 742.) Therefore, according to Foley, the texture maps represent surface material properties, such as diffuse color.

In the above-indicated claim language, the recited object positions texture *itself* represents the position of a set of sample points on an object - the recited object normals texture *itself* represents the normals of the sample points. In Foley, the texture maps represent surface properties, such as color. Foley fails to suggest that textures represent positions or normals of sample points.

In Morioka, the textures also appear to simply represent color of the object surface. (See, e.g., Morioka at column 2, lines 58-61.)

Accordingly, Foley and Morioka, whether considered individually or in combination, fail to teach or suggest textures represent positions and normals of sample points.

Foley And Morioka Lack Outer Loop Iterating Over Directions, While Inner Loop Iterates Over Positions.

Claims 1-3 also contain language relating to the outer loop iterating over directions, while the inner loops iterates over positions. Specifically, claim 1 recites a set of actions performed "iteratively, for each of a set of directions sampled about the object [emphasis added]," where the actions are performed "for the set of points" in the currently iterated direction. Claims 2 and 3 contain similar language.

The Office appears to interpret Morioka to do quite the opposite. At page 3 of the Action, the Office states, "in column 8 lines 42-46 where it is described that the light emitted in a particular direction from a point on the surface, or the radiance, for each point is calculated in all directions (column 15, lines 10-11) and is stored in the table 80 as illustrated in Figure 19." In other words, Morioka's outer loop iterates over the points on the object, and the inner loop evaluates over all directions for that point.

According, Foley and Morioka also fail to teach or suggest the outer loop iterate over directions, while the inner loop iterates over positions.

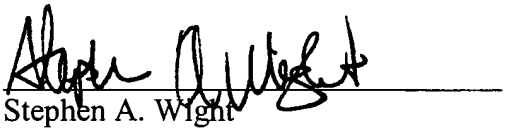
For at least these reasons, claims 1-3 clearly should be allowable over this art.

Conclusion

The application should now be in condition for allowance. Such action is respectfully solicited.

Respectfully submitted,

KLARQUIST SPARKMAN, LLP

By 
Stephen A. Wight
Registration No. 37,759

One World Trade Center, Suite 1600
121 S.W. Salmon Street
Portland, Oregon 97204
Telephone: (503) 595-5300
Facsimile: (503) 228-9446